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ABSTRACT

This study investigated the extent to which various factors play a part in English-as-a-Second-Language (ESL) students' ability to resolve pronoun-antecedent connections in reading. The subjects were 97 ESL learners with four different native languages (Japanese, Korean, Chinese, Spanish) enrolled in the University of Illinois's Intensive English Institute and divided into three English proficiency levels: elementary, intermediate, and advanced. Subjects were given two tests, one consisting of meaningful but decontextualized sentences, some containing nonsense words, and one a narrative in story form (contextualized). Relevant vocabulary was introduced before testing. Other variables included type of anaphoric expression: noun phrase (NP) or verb phrase (VP), direction (forward and backward anaphora), and distance between pronoun and anaphoric expression. Results indicate that the decontextualized sentences were resolved more easily than the contextualized by each language group, possibly attributable to the limited referent possibilities. Distance between pro-form and antecedent aided comprehension in lower-proficiency groups, forward anaphora were easier than VP anaphora, and in all measures, there was a significant effect for proficiency level. Sentence examples, analyses of results, and a 20-item bibliography are appended. (MSE)

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HOW ESL STUDENTS RESOLVE ANAPHORA IN READING

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The phenomenon of how anaphora is resolved and understood has been extensively studied during the last decade and a half. Nevertheless, very little research (Cowan, 1979; Gundel and Tarone, 1983; Parish and Perkins, 1985; Demel, 1990) has been carried out in how second language learners resolve anaphora in texts. It seems, however, that ESL teachers, materials developers and textbook writers believe that high intermediate, and even advanced L2 learners have difficulty in resolving pronoun-antecedent relations. Proof of this may be found in the many textbooks that contain exercises which check comprehension of pronouns and anaphoric expressions (Hillman, 1990; Walker, 1989; Yates, 1989; Johnson, 1988; Pearson and Williams, 1987; Latulippe, 1987; Strother, 1987; Rosenthal and Rowland, 1986; Kay, 1985; Noto, 1985; Long et al., 1980; Maclean, 1975; Allen and Widdowson, 1974, Mc Arthur, 1973).

To find out whether it is true that ESL students have difficulty in resolving anaphora, we decided to carry out a study with ESL learners of three different proficiency levels. Our objective was to examine the extent to which various factors play a part in ESL students' ability to resolve pronoun-antecedent connections. Besides proficiency, the factors considered were type of anaphoric expression (noun phrase anaphors and verb phrase anaphors), context, vocabulary, direction (forward anaphora and backward anaphora), and distance between pronoun and anaphoric

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expression.

Research methodology

The pro-forms selected for the study were: it, they, one, them, that, those, these, its, and there. All of them, except "that" were used as noun phrase (NP) anaphors. "It" and "that" were used as verb phrase (VP) anaphors. VP anaphora was used to test directionality: in forward anaphora the pro-form follows the antecedent, and in backward anaphora the pro-form precedes its antecedent.

To test distance, four pro-forms were included in two conditions: near, i.e., the antecedent was in an adjacent sentence, and distant, i.e., antecedent and anaphor were separated by one intervening clause.

To investigate whether context makes a difference in resolving anaphora, two tests were given. One test consisted of sentences containing enough information in themselves to be meaningful, but which did not build on information found previously (decontextualized), and the other test was a narrative text in the form of a story (contextualized). (Examples of the sentences used in the decontextualized test, and part of the narrative text are given in the Appendix).

As it was important to find out the influence of vocabulary, all the words in the texts were taught prior to the tests. But in the decontextualized test there were sentences containing nonsense words that look like English words.

Because there has been controversy with respect to Flynn's

hypothesis and parameter-setting model (1987) based on Universal Grammar, we decided to investigate whether the native language of the learners influence their comphrehension of anaphora. Therefore, we selected four language groups: Chinese, Japanese, Korean, and Spanish.

Chinese, Japanese and Korean are similar in that they are left-branching languages. On the other hand, Spanish, like English, is a right-branching language. These languages also differ with respect to pronominalization, as Chinese, Japanese, and Korean are languages which allow zero anaphora when the referent is clear from context. English is on the opposite end of the continuum, as zero anaphora is rarely allowed, and Spanish is in the middle because pronouns may be omitted when the information conveyed by them is present in other words.

Subjects

The subjects were 137 ESL learners attending the Intensive English Institute of the University of Illinois. There were 75 males and 62 females, of 14 different native languages. The subjects' TOEFL scores were used to assign them to three levels of proficiency: elementary (below 430), intermediate (between 431 and 510), and advanced (above 510).

The total number of subjects for the language analyses was 97: 29 speakers of Japanese, 21 of Chinese, 30 of Korean, and 17 of Spanish. These four groups were similar in terms of distribution into the proficiency levels and of proficiency in the L2.

Procedure

The week before the actual administration of the tests, the subjects were taught the vocabulary included in both tests and were tested on it. The two tests were given during two different class periods. One day the subjects were given a booklet containing the sentences (decontextualized text), and on the following class period they were given the passage (contextualized text). Both tests contained instructions as well as examples of how to respond.

Results and discussion

CONTEXT: The statistical tests, Analyses of Variance, showed a main effect for context, but this result was not what would have been anticipated, that is, that context facilitates resolution of anaphora. In fact, the decontextualized test was easier than the contextualized one. Both tests contained sentences of similar structure and difficulty. Why was the performance on the context test lower than on the no context test? One of the reasons may be that when the learner is presented with a longer passage, he or she must keep track of several things at the same time: meaning, relations, development of the ideas presented. This places a heavier load on the learner's memory. On the other hand, when the text is brief there are fewer possibilities from which to choose, so the reader is more likely to choose the correct referent.

The same results were obtained with the four language groups. In general, the decontextualized test was easier than the contextualized test, but for advanced learners this factor did not make any difference as they performed equally well on both. Although these four language groups are of very similar proficiency

in ESL, they performed differently in the lower levels (Japanese and Spanish learners did better than Koreans and Chinese). In the higher levels, however, they performed similarly.

Our hypothesis that context does not make a difference is disconfirmed, but the results show a different pattern from what most teachers would expect. Context does not always facilitate comprehension. In fact, in the case of less proficient learners it seems to make it more difficulty. The reason is that it is easier to find referents in short texts because these are much more restricted and, therefore, contain less information to retain.

VOCABULARY: The statistical analyses carried out revealed that there was an interaction of proficiency and vocabulary caused by the lower proficiency levels. (See Figure 1 in the Appendix). Proficient learners did as well when they knew the vocabulary as when they did not know it. For learners of low proficiency, meaning is important and, therefore, it is an essential aspect of comprehension, which enables them to make associations between words. As the learner becomes more proficient, meaning is not so crucial: the learner is able to make the necessary connections, even though he or she may not know the meaning of some words, due to his/her knowledge of the grammar of the language.

A linguistically interesting finding was obtained with the language groups; there was a remarkably significant difference in performance between the Spanish speaking subjects and those who speak an Asian language. This can be seen in Figure 2, in the Appendix. Only Spanish speakers did significantly better on known

vocabulary. For Asian subjects vocabulary did not make any difference. It seems that learners whose L1 is very different from English are more used to coping with the difficulties that a totally new linguistic system presents to them. The learners whose native language is Spanish seem to be more sensitive to difficulties such as vocabulary, maybe due to a greater reliance on strategies of transfer.

DISTANCE: The analyses of the results show that performance was better when there was an intervening clause between the pro-form and the antecedent than when they were nearer. Advanced learners, however, performed just as well on near as on distant anaphora.

A three-way ANOVA run showed an interaction between distance, context and proficiency. Distant anaphora was easier in the contextualized test, while near anaphora was easier in the decontextualized test. The reason for these results seems to be that in the contextualized test finding antecedents to pro-forms when they are distant is easy because the reader is making sense of the passage--which in this case was a story.

The analysis performed with the four language groups showed very similar results.

DIRECTION: Forward anaphora is much easier than backward anaphora for all proficiency levels. A post hoc test showed that direction is significant for each one of the proficiency levels. See Figure 3 in the Appendix.

The results obtained with the four language groups are the

same. Regardless of native language or proficiency level, backward anaphora is more difficult than forward anaphora. This is shown in Figure 4 in the Appendix.

As the learner's proficiency level increases, his/her ability to resolve backward pronominalization improves. These results do not support Flynn's Universal PBD hypothesis; rather they support O'Grady, Suzuki-Wei and Cho's "forward preference hypothesis" (1986).

TYPE OF ANAPHORA: NP anaphora is easier than VP anaphora, as Figure 5 shows. An interaction between context and type of anaphora showed that VP anaphora was more difficult to resolve than NP anaphora in the contextualized test, but not in the decontextualized test. NP anaphora was as easy in context as in no context. Figure 6 illustrates this.

With the four language groups, type of anaphora was not statistically significant.

PROFICIENCY: One of the most important questions asked in this study concerned the role of proficiency. The answer is that successful resolution of co-reference depends on the learner's proficiency level. In every test performed there was a main effect for proficiency ($p < .001$).

In general, and as expected, advanced and even high intermediate learners seemed not to have much difficulty in resolving pronoun-antecedent relationships. Advanced learners resolved them about 90% of the time they were exposed to anaphora on variables such as context, vocabulary, distance, and type of

pronominalization. Only in direction did they exhibit a lower performance (between 74% and 84% correct). Intermediate learners were able to resolve anaphoric relationships over 80% of the time, except for backward pronominalizatioon (64%). But at the elementary level, ESL learners had trouble resolving anaphora. Their overall performance was roughly between 55% and 65% correct, except for backward pronominalization, where it was as low as 36%.

Implications for teaching

These results raise a basic question: should we be teaching anaphoric relations to ESL learners? From the results obtained in this study it seems unnecessary to spend time teaching or practicing anaphoric relations at the high-intermediate and advanced levels. Elementary students have more difficulty with anaphora, but it may be a language problem which they will overcome as they become more proficient. Therefore, it may not be necessary to teach anaphora. It seems that by the time students reach the advanced level they are able to resolve anaphora fairly well.

For those teachers who wish to teach anaphoric ties, low intermediate level is where these exercises would probably be most useful. In this case, practice should be provided in contextualized texts, since it is here that ESL learners have more trouble. Also exercises on VP anaphora should be included, especially backward pronominalization, since it is particularly difficult for ESL learners.

However, one of the problems of teaching anaphora at low intermediate level is vocabulary, which appears to influence

learners' comprehension of anaphoric ties. Consequently, attention must be paid to vocabulary in the construction of exercises.

APPENDIX

Examples of sentences used in the test:

a) Fred decided to repair the door, but he couldn't do it without a hammer.
b) They warned us that it was very unlikely, but we were sure that we would see an elephant.
c) John always used to laugh at the girls playing soccer. Because of that, he was not invited to the party.
d) A new chemical has been discovered in the university laboratory. Scientists agree on its importance.
e) Doctors recommend that their patients eat healthy foods. Since a balanced diet is important, they need to know what is good for them.
f) The frables offered by the snoddles are excellent. Those you can get in the kales are also good. (nonsense words included).

Part of the narrative text:

Fortunately they still had their sleeping bags, which they have kept in the basement closet. So there was no need to buy new (14) ones. They are still in good condition although it was a long time since they last used (15) them. They also had a couple of folding chairs, but they were broken. John thought (16) it would be fairly easy to do, so he decided to try to fix (17) them.

Figure 1 Amount correct on vocabulary

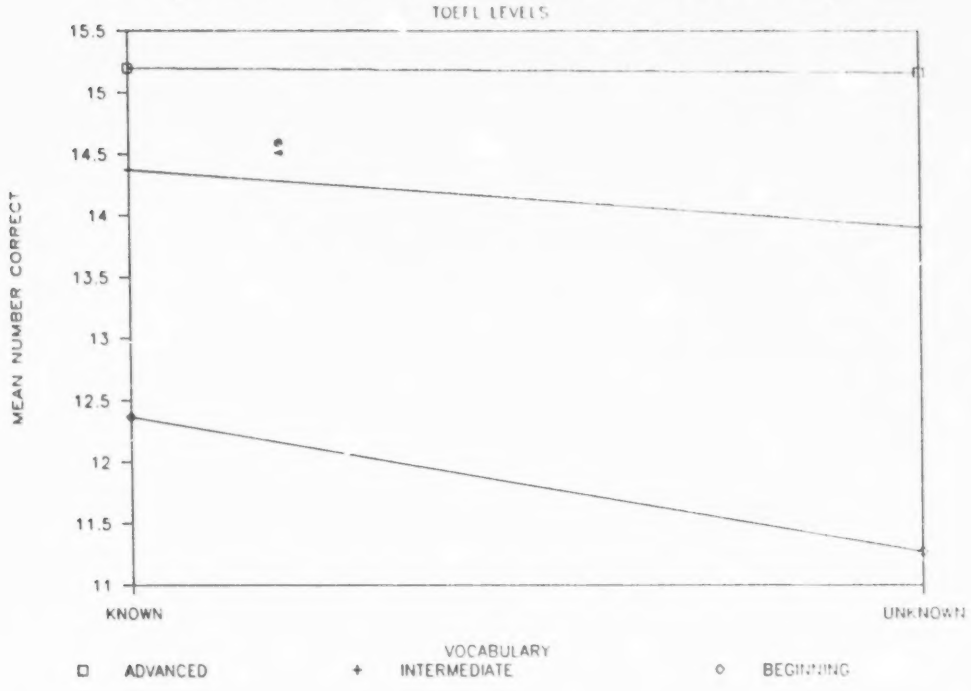


Figure 2 Amount correct on vocabulary

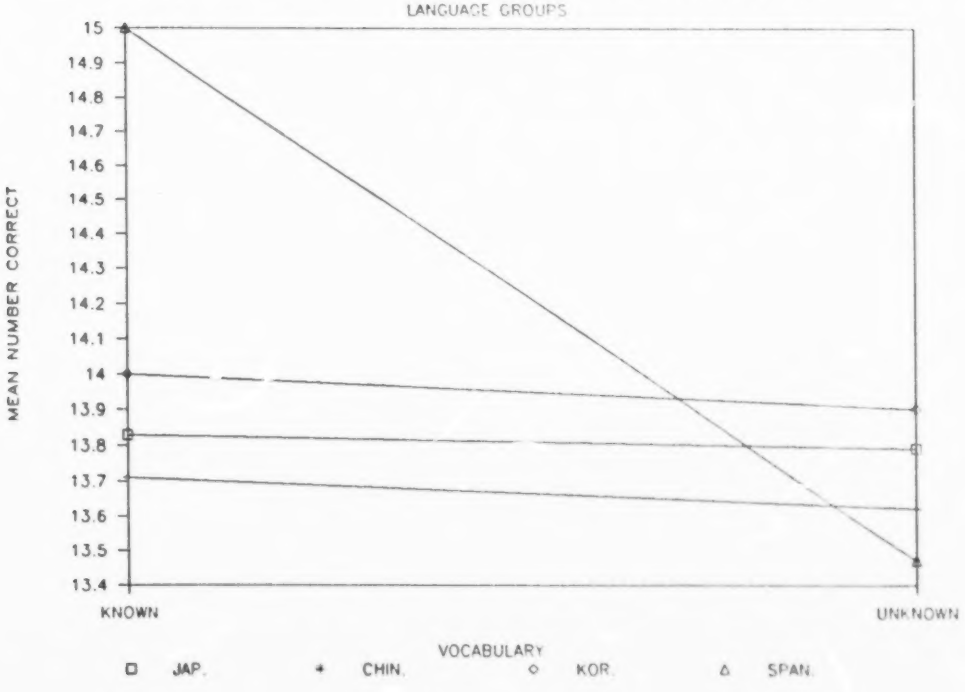


Figure 3. Amount correct on direction

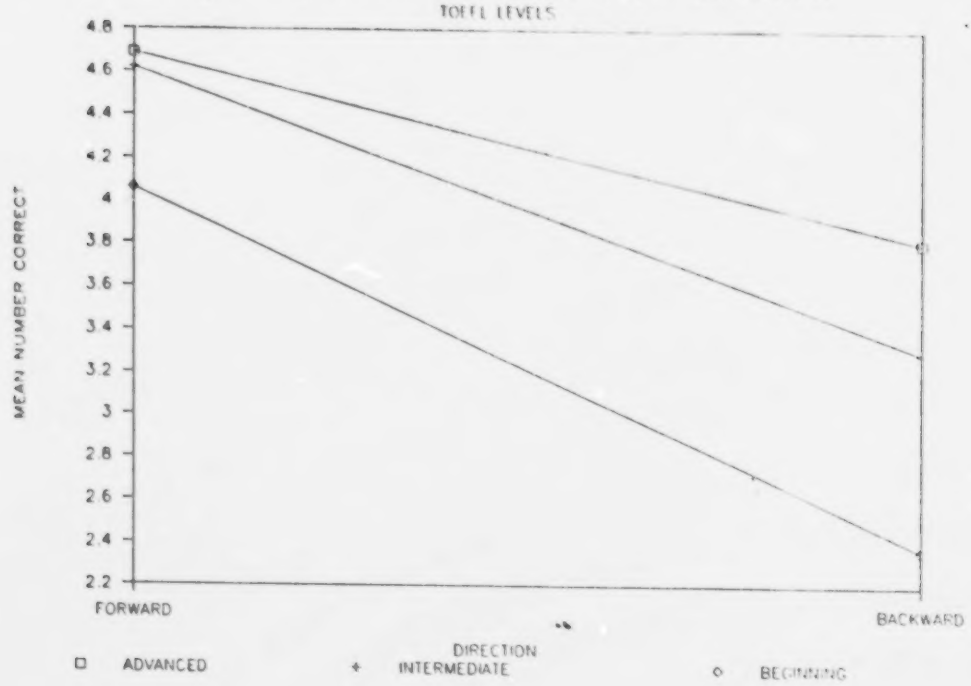


Figure 4. Amount correct on direction

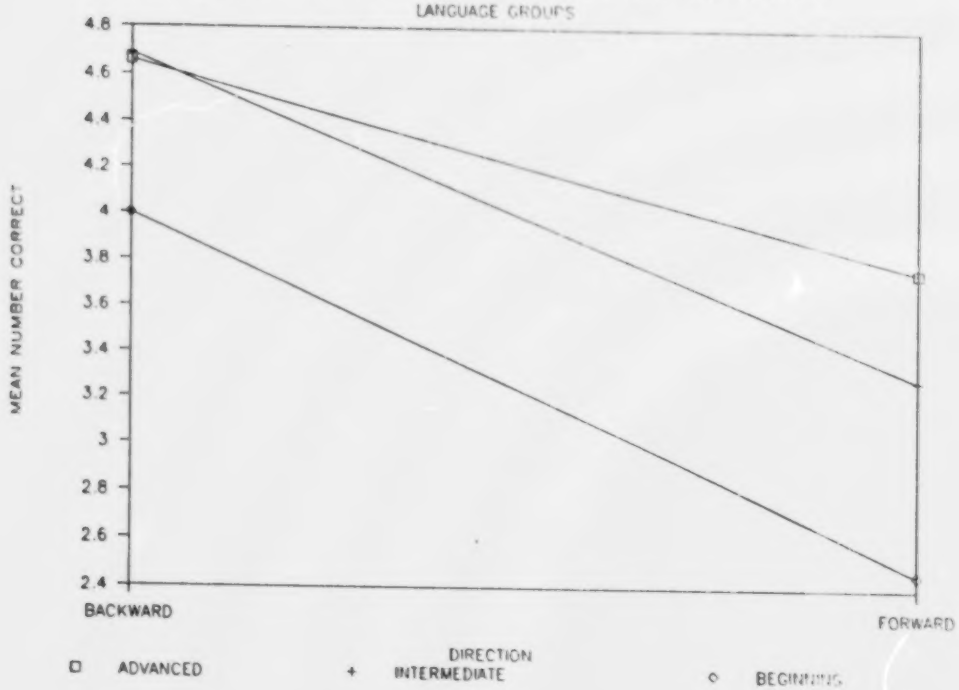


Figure 5. Type by proficiency

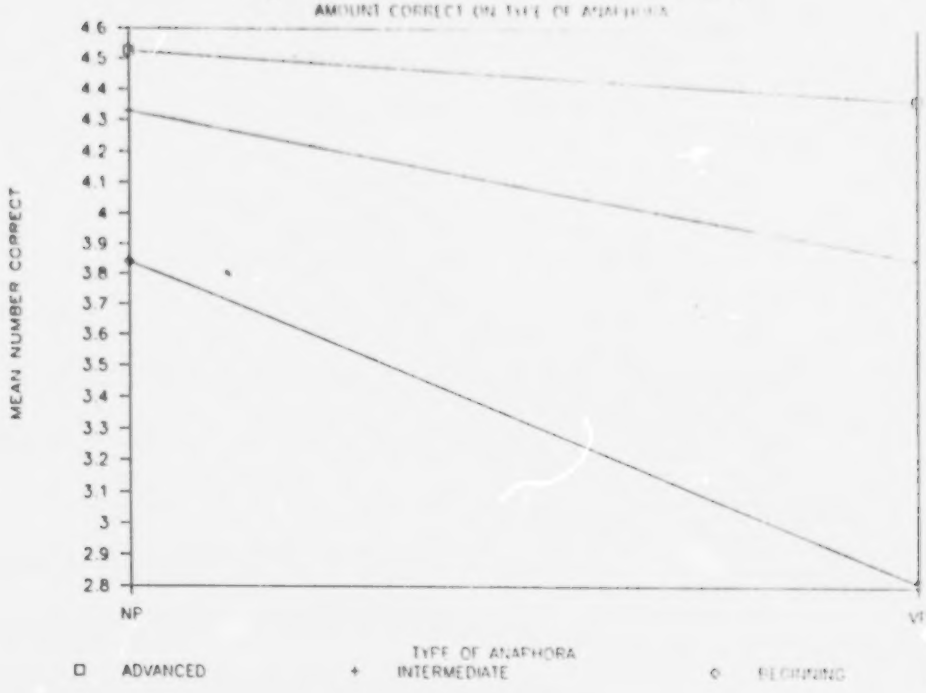
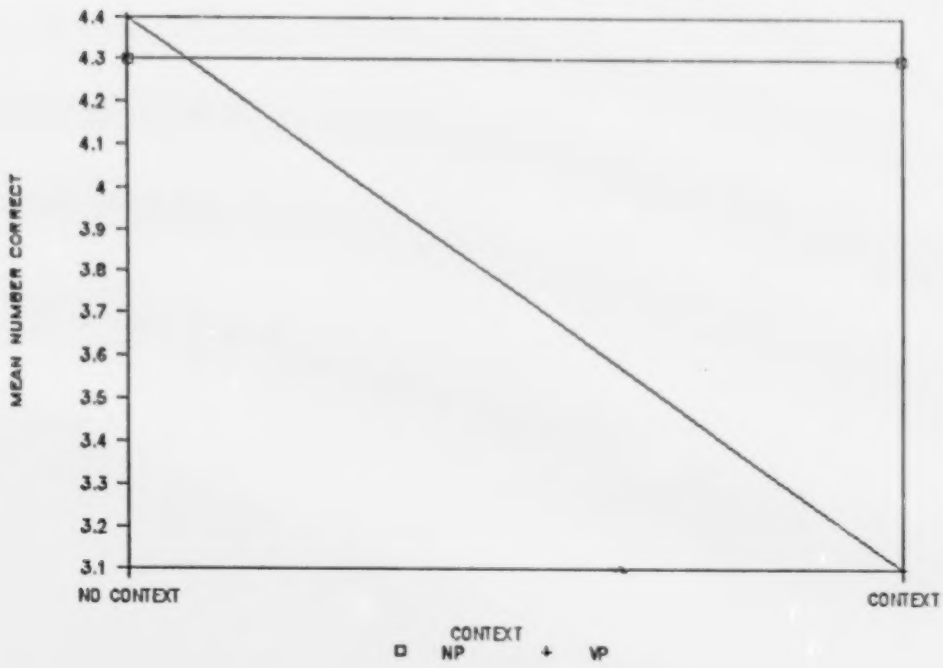


Figure 6. Type of anaphora by context



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